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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,653	03/17/2004	Peter Zentgraf	P25021	1681
7055	7590	07/05/2006	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			PIPALA, EDWARD J	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/801,653	Applicant(s) ZENTGRAF, PETER	
	Examiner Edward Pipala	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 5, 6 and 12-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/23/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office action is in response to Applicant's election, amendment and remarks received 4/17/06 in which claims 1-4 and 7-11 were elected with traverse.

Election/Restrictions

2. Applicant's election with traverse of claims 1-4 and 7-11 in the reply filed on 4/17/06 is acknowledged. Claims 5, 6 and 12-14 are withdrawn from consideration.

The traversal is at least on the ground(s) that the Examiner has not shown a serious burden.

This is not found persuasive because the Examiner are not found to be persuasive because the Examiner did substantiate the need for a diverse field of search by noting the separate classifications for each of the sets of claimed inventions and has therefore shown a prima facie case of the burden on the Examiner at least by pointing out the diverse scope for the subject matter of the restriction requirement.

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

3. The IDS filed 7/23/04 has been fully considered by the Examiner as indicated by the accompanying initialed copy of Applicant's form PTO-1449.

Specification

4. The amendment filed 7/23/04 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the substitution of paragraph section [0018] with new [0018.1] is objected to in that Applicant has not explicitly pointed out the justification and basis for this voluminous change to the specification, now comprising nearly 5 pages for what was previously a single paragraph of just a few lines.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-4 and 7-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter in that the claimed method is nothing more than a series of mathematical and/or computer based matrix operations without finally getting around to operating the nozzles using the recited method of optimum-fuel control.

In preamble of each of independent claims 1 and 7 Applicant recites a method for the "computer assisted determination" (claim 1) and "[a] computer control method" (claim 7), to obtain an optimum fuel control of nozzles and then goes on to lay out the matrix

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representations for the terms of the control instruction, and a series of data manipulation steps of computer generation of starting constraints, data processing a representation of a geometric description of the starting constraints, searching limiting points sets of the geometric description with a computer-assisted geometric search procedure, and then applying the matrix transformation of the minimization criterion to the points of the limiting point set (claim 1 being used as a representative example).

Dependent claims 2-4 further involve additional matrix/mathematical manipulations and calculation, where claim 2 recites finding a homogenous solution to the control instruction for the starting constraints, claim 3 recites more matrix transformation and determining of limiting point sets, where claim 4 adds repeatedly projecting allowable multi-dimensional value regions of the dimension p and subsequently searching with a computer-assisted search procedure for a determination of limiting point sets as a cut set of limiting intervals.

The scope of independent claim 7 further appears to be broader than that of independent claim 1, since some of that subject matter (as found in claim 1), is now in the form of dependent claim 8 (defining the control instruction $b = Ax$, along with the nozzle matrix and nozzle control vector). Dependent claim 9 (depending from claim 8) further recites determining a homogenous solution for the control instruction and introduces a new claim limitation in the form of scalar products of a vector representation of points of the limiting point set and calculating an optimum-fuel solution with the aid of vector r whose scalar product is minimal with vector v_d . Claim 10 is similar to previous claim 3, and claim 11 is similar to previous claim 4.

The reason that these claims are not statutory subject matter under 35 U.S.C. 101 is that even though Applicant recites this method (or methods) within an environment of optimum-fuel control of nozzles, Applicant does not seem to implement the "results" of the control method in any manner (i.e., applying the control solution to the recited nozzle matrix to effect the desired force/torque results of a vehicle to which they are appended), so as to provide a recognizable useful concrete and tangible result.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-4 and 7-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As presently set forth, the claimed method for computer-assisted determination of an optimum-fuel control of nozzles is essentially a black box with no description of the internals thereof. The disclosure is thus insufficient in failing to set forth in an adequate and sufficient fashion, a description of the internals of the computer generating of starting constraints and minimization criterion, the data processing in which a "representation" of a geometric description of the matrix transformation of those starting constraints, the

manner in which the searching with a “computer-assisted geometric search procedure in vector space of limiting points sets, and finally the manner in which the matrix transformation is “applied” with respect to the minimization criterion and points of the limiting point sets.

If applicant is of the opinion that there is a description in the prior art (in the form of literature, etc. having a date prior to the filing date of this application), that can accomplish the disclosed and claimed features, copies of said literature, etc., must be submitted for appropriate review by the Office. See *In re Ghiron et al*, 169 USPQ 723, 727.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-4 and 7-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Similar to the above rejection under 35 U.S.C 112, 2nd paragraph, here the rejection is based on the failure to particularly point out and distinctly claim what is meant by the claim language of “generating of starting constraints” and “minimization criterion”, the data processing in which a “representation of a geometric description” of the matrix transformation of those “starting constraints”, the manner in which the “searching” is accomplished with a “computer-assisted” “geometric search procedure” in vector space, nor the basis for selecting those particular limiting points sets, much less the manner in

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which the matrix transformation is “applied” with respect to the “minimization criterion” and “points of the limiting point sets”.

The dependent pending claims are included in each of the above 35 U.S.C 112 rejections because they depend on an indefinite base claim and are therefore also subject to the difficulties as discussed above with respect to claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Pipala whose telephone number is 571-272-1360. The examiner can normally be reached on M-F 9-5:30.

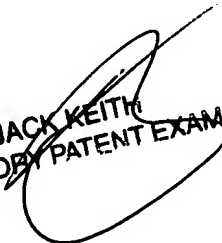
If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ejp


JACK KEITH
SUPERVISORY PATENT EXAMINER